

What is claimed is:

1           1.       A method for recovering an organic solvent from a waste stream comprising  
2 supercritical CO<sub>2</sub>, an organic solvent and etching contaminants which comprises:

3           a)       separating the supercritical CO<sub>2</sub> by subjecting the waste stream to elevated  
4 temperature or reduced pressure or both, to thereby obtain a first composition containing the  
5 supercritical CO<sub>2</sub> and a second stream containing the organic solvent and being at least  
6 substantially free of the supercritical CO<sub>2</sub>, and then

7           b)       removing non-volatile etching contaminants from the second stream to  
8 recover the organic solvent free of the etching contaminants.

1           2.       The method of claim 1 which comprises removing the non-volatile etching  
2 contaminants via evaporation

1           3.       The method of claim 1 which comprises removing the non-volatile etching  
2 contaminants by distillation.

1           4.       The method of claim 1 which comprises removing the non-volatile etching  
2 contaminants by filtration.

1           5.       The method of claim 1 which comprises removing the non-volatile etching  
2 contaminants by centrifugation.

1           6.       The method of claim 1 which comprises removing the non-volatile etching  
2 contaminants by settling.

1           7.       The method of claim 1 wherein the organic solvent is selected from the  
2 group consisting of propylene carbonate, homologs thereof, N-methyl pyrrolidone and  
3 gamma butyrolactone.

1           8.     The method of claim 1 wherein the organic solvent comprises propylene  
2 carbonate or homolog thereof.

1           9.     The method of claim 1 wherein the organic solvent comprises propylene  
2 carbonates.

1           10.    The method of claim 3 wherein the distillation comprises fractional  
2 distillation.

1           11.    The method of claim 3 wherein the distillation comprises sequential  
2 evaporations.

1           12.    A method for recovering an propylene carbonate from a waste stream  
2 comprising supercritical CO<sub>2</sub>, propylene carbonate and etching contaminants which  
3 comprises:

4           a)     separating the supercritical CO<sub>2</sub> by subjecting the waste stream to elevated  
5 temperature or reduced pressure or both, to thereby obtain a first composition containing the  
6 supercritical CO<sub>2</sub> and a second stream containing the propylene carbonate and being at least  
7 substantially free of the supercritical CO<sub>2</sub>, and then

8           b)     removing non-volatile etching contaminants from the second stream to  
9 recover the organic solvent free of said etching contaminants by at least one process selected  
10 from the group consisting of evaporation, distillation, filtration, centrifugation and settling.

1           13.    The method of claim 12 wherein the waste stream contains about 0.1 to  
2 about 3 molar of the supercritical CO<sub>2</sub>.

1           14.    The method of claim 12 wherein the etching contaminants comprises at least  
2 one member selected from the group consisting of silicon nitride, silicon dioxide, and  
3 ammonium fluoride.

1           15.     The method of claim 1 wherein the waste stream contains about 0.1 to about  
2     3 molar of the supercritical CO<sub>2</sub>.

1           16.     The method of claim 1 wherein the etching contaminants comprises at least  
2     one member selected from the group consisting of silicon nitride, silicon dioxide, and  
3     ammonium fluoride.

1           17.     A method for recovering propylene carbonate from a waste stream  
2     comprising supercritical CO<sub>2</sub>, propylene carbonate and etching contaminants which  
3     comprises:

4           a)     separating the supercritical CO<sub>2</sub> by subjecting the waste stream to elevated  
5     temperature or reduced pressure or both, to thereby obtain a first composition containing the  
6     supercritical CO<sub>2</sub> and a second stream containing propylene carbonate and being at least  
7     substantially free of the supercritical CO<sub>2</sub>, and then

8           b)     removing non-volatile etching contaminants from the second stream by at  
9     least one process selected from the group consisting of evaporation, distillation, filtration,  
10    centrifugation to recover the said settling of the etching contaminants to recover the organic  
11    solvent free of the etching contaminants

12                 and wherein said temperature is about 20°C to about 150°C and said pressure is  
13    about 16 to about 75 torr.

1           18.     The method of claim 17 wherein the waste stream contains about 0.1 to  
2     about 3 molar of the supercritical CO<sub>2</sub>.

1           19.     The method of claim 18 wherein the etching contaminants comprises at least  
2     one member selected from the group consisting of silicon nitride, silicon dioxide, and  
3     ammonium fluoride.

20. The method of claim 17 wherein the etching contaminants comprises at least one member selected from the group consisting of silicon nitride, silicon dioxide, and ammonium fluoride.